

WHAT IS CLAIMED IS:

1. ~~An apparatus defining a node, the apparatus comprising:
an optical switch for routing optical signals, the optical switch including ports;
a light source;
a light detector; and
control circuit connected to the optical switch.~~
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a1* } 2. The apparatus recited in claim 1 wherein the control circuit comprises node identification.
3. The apparatus recited in claim 2 wherein the control circuit causes the light source to send the node identification via a port of the optical switch.
4. The apparatus recited in claim 2 wherein each port of the node is identified with a port identification.
5. The apparatus recited in claim 1 wherein the light source is connected to a first port of the optical switch for sending optical signal to identify the optical node.
6. The apparatus recited in claim 2 wherein the light detector is connected to a second port of the optical switch for detecting optical signals identifying another optical node.
7. The apparatus recited in claim 1 wherein the control circuit determines connection information of a second port of the optical switch by detecting node identification from another apparatus.

8. The apparatus recited in claim 6 wherein the control circuit updates a path router with the connection information.
9. The apparatus recited in claim 1 wherein the control circuit is connected to a path router that provides the node with node identification.

~~10. An optical network comprising:~~

a plurality of optical nodes, each node having ports, a first node comprising
an optical switch for routing optical signals, the optical switch including ports;
a light source;
a light detector;
control circuit connected to the optical switch; and
the optical nodes interconnected via the ports.

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11. The network recited in claim 10 wherein the control circuit comprises a first node identification.

12. The network recited in claim 10 wherein the light source of the first optical node is connected to a first port of the optical switch for sending identification signal to identify the first optical node.

13. The network recited in claim 12 wherein the light detector is connected to a second port of the optical switch for detecting optical signals identifying another optical node.

14. The network recited in claim 12 wherein the control

circuit causes the light source to send the first node identification via a port of the optical switch.

15. The network recited in claim 12 wherein the control circuit determines connection information of a second port of the optical switch by detecting, via the light detector, a second node identification from a second optical node.
16. The network recited in claim 15 wherein the control circuit updates a path router with the connection information.
17. The network recited in claim 11 further comprising a path router having a table of connections, the table including connection information.
18. The network recited in claim 11 further comprising a path router wherein the path router polls the first node for connection information.
19. The network recited in claim 11 further comprising a path router having a table of connections defining topology of the network.
20. The network recited in claim 19 wherein the first node identification is provided by the path router.
21. A method of determining topology of a network, the method comprising:
 - determining connection information of a first port of a first node; and
 - updating a path router with the connection information.

22. The method recited in claim 21 wherein the method of determining connection information of the first port of the first node comprises receiving, at the first port of the first node, identification signal from a second node.
23. The method recited in claim 21 wherein the first node is identified using a node identification provided by the path router.
24. A method of discovering an optical interconnect path, the method comprising:
 sending, from a first port of a first node, a first identification of the first node; and
 receiving, at a first port of a second node, the first identification of the first node wherein the interconnect path is the path between the first port of the first node and the first port of the second node.
25. The method recited in claim 24 further comprising:
 sending, from the first port of the second node, a second node identification; and
 receiving, from the first port of the first node, the second node identification of the second node.
26. The method recited in claim 25 further comprising storing, at the second node, the interconnect path.
27. The method recited in claim 25 further comprising reporting the interconnect path to a third node.
28. The method recited in claim 25 further comprising reporting the interconnect path to a path router.